

Appl. No. 10/027,462
Resp./Amtd. dated Sep. 1, 2006
Reply to Office Action of 06/07/2006

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REMARKS/ARGUMENTS

There are no amendments to the specification or drawings herein.

In the Claims, Claims 1-12 and 14-35 are pending. Claim 13 was previously canceled. Claims 5-9, 15-20, 34 and 35 are allowed. Claims 1, 2, 10-12, 21, 23, 25-27 and 30-33 are rejected and Claims 3, 4, 14, 22, 24, 28 and 29 are objected to. Claims 1, 21, and 26 are amended herein. Reconsideration is respectfully requested.

Applicant appreciates the Examiner acceptance and entry of amendments to the claims offered in a previous Response/Amendment filed May 15, 2006 (hereinafter 'Previous Response'). Applicant further appreciates the Examiner's withdrawal of a rejection of Claims 1-2 under 35 U.S.C. 102(b) as being anticipated by Zwirn et al., U.S. Patent No. 4,789,898; a rejection of Claims 21, 23, 26-27 and 34-35 under 35 U.S.C. 103(a) as being unpatentable over Zwirn et al., further in view of Onoguchi et al., U.S. Patent No. 6,067,164; and a rejection of Claims 25 and 30 under 35 U.S.C. 103(a) as being unpatentable over Zwirn et al., in view of Onoguchi et al., and further in view of Rooks et al., IEEE, June 5, 1999, "Development of an inspection process for ball-grid-array technology using scanned-beam x-ray laminography".

However, Applicant notes that, in the present Office Action mailed June 7, 2006 (hereinafter 'Present Action'), the Examiner has inexplicably *changed the status* of Claims 10-12 and 31-33, from *allowed to rejected*, and further changed the status of Claim 14 from allowed to 'objected to but allowable if rewritten' due to its dependency from Claim 10. Applicant is confused and dismayed by this change in status since it is not based on newly cited art. Moreover, Applicant objects in the strongest terms to this status change on the grounds that the Examiner previously had explicitly allowed the aforementioned claims in view of the currently applied art and has offered no justification for the status change.

In particular, in a previous Final Office Action mailed March 31, 2006 (hereinafter 'Previous Action'), the Examiner explicitly allowed Claims 10-12, 14 and 31-33. In an *Allowable Subject Matter* section of the Previous Action, at Page 11, the Examiner admitted, "[t]he prior art of record (Zwirn et al. U.S. Patent No. 4,789,898) ... *does not teach* obtaining the optimal focused image ..., as recited in Claims 5, 10, and 31" (*emphasis added*). The Examiner concluded, "[t]herefore, claims 5, 10, 15

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and 31 are allowed and all other claims depending on claims 5, 10, 15 and 31 *are allowed ...*" (*emphasis added*). The claims in question were not amended in the Previous Response. Moreover, the *change in status is not in view of new art*, but is instead based and *depends entirely on previously* applied prior art that had been successfully overcome by Applicant. Other than repeating a rejection that essentially had been previously addressed and overcome by Applicant, the Examiner provided *no explanation regarding why the status of Claims 10-12, 14 and 31-33 in the Previous Action had changed from 'allowed' to 'rejected' was given.*

Once again, Applicant reminds the Examiner that the applied prior art is the *same* in the Previous Action as in the Present Action and that the Applicant made no changes to the claims in the Previous Response. As such, there would seem to be no discernable reason for the Examiner to change the status of these claims. Applicant respectfully requests the Examiner reconsider and withdraw the rejections. *If the rejections are not withdrawn, Applicant respectfully requests that the Examiner provide an explanation in writing regarding why the change in status was warranted.*

Telephone Interview Attempt Summary

Repeated attempts were made to contact the Examiner by telephone to discuss the Present Action and Applicant's proposed response thereto. In particular, the undersigned, Mr. J. Michael Johnson, Agent for Applicant, placed three phone calls to the Examiner, the phone calls being placed on each of three separate days (i.e., calls were placed during normal USPTO business hours on Thursday, 8/17/06; Monday, 8/21/06; and Tuesday, 8/22/06). A message requesting that the Examiner return the call was left with the Examiner's voice mail in each instance. The Examiner, to date, has not returned a single one of Mr. Johnson's phone calls. A call to Examiner Bhavesh Mehta, SPE, was unsuccessful since a recorded message indicated that Examiner Mehta was on leave and provided no indication of an alternate point of contact. Having been unsuccessful in reaching the Examiner or his SPE, Applicant is forced to respond to the Present Action without benefit of a telephone interview to clarify issues raised therein.

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In the instant response, Applicant has amended Claims 1, 21 and 26 for consideration. Specifically, Claims 1 and 21 are amended to clarify that the image of a typical object is one of a plurality of typical object images in a set, each image of the plurality having associated therewith a different focus position of the imaging system. Support for the amendment of Claims 1 and 21 is provided by Applicant's specification as well as at least allowed Claim 7, as originally filed. Applicant has amended Claim 26 to clarify that the, "set of images comprises a plurality of different images of the typical object, each different image being taken at a different focus position of the imaging system". Support for the amendment of Claim 26 is provided by Applicant's specification as well as at least allowed Claim 7, as originally filed.

Applicant respectfully requests entry and consideration of the amendments to Claims 1, 21 and 26. Furthermore, these amendments do not raise new issues that were not already considered by the Examiner (e.g., see allowed Claim 7) and respectfully cannot, by themselves, necessitate a new search.

Remarks/Arguments regarding Present Office Action

In the Present Action, the Examiner rejected Claims 1, 21, and 26 under 35 U.S.C. 102(b) in view of Kitamura, U.S. Patent No. 5,369,430 (hereinafter 'Kitamura'). Regarding Claim 1, the Examiner contended, "Kitamura discloses an image of a typical object (reference image pattern – which is not being imaged by the imaging system but is pre-stored)". The Examiner further contended that Kitamura, "discloses a comparison between an image of a typical object and the image of the object created by the imaging system to determine an optimum focus position". The Examiner cites Kitamura, Col. 2, lines 64-68, as well as Col. 3, lines 1-20, Col. 2., lines 1-16, and Figure 1, in support of the respective contentions. Regarding Claims 21 and 26, the Examiner further contended, "Kitamura discloses an imaging system that recites a memory, program (inherent to be used by CPU) and a CPU (controller)", citing Col. 5, lines 10-45. Kitamura is new art that had not previously been applied by the Examiner.

Applicant traverses the rejection of Claims 1, 21, and 26 on the grounds that the Examiner failed to establish a *prima facie* case of anticipation with respect to Kitamura. In particular, Kitamura does not disclose, explicitly or implicitly, "each

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element of the claim under consideration" (*W.L. Gore & Associates v. Garlock*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983)) and further that Kitamura does not disclose the claimed elements "arranged as in the claim" (*Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1984)), as *required* by the Federal Circuit for *prima facie* anticipation under 35 U.S.C. 102.

In particular, Kitamura discloses, "[a] focus detecting method", that includes "projecting the real image of an observation object including a plurality of object patterns", and, "producing image data" associated with the object patterns (Kitamura, Abstract, lines 1-4). At lines 6-9 of the Abstract, Kitamura further discloses, "calculating correlation values of the image data of each of the plurality of object patterns and the image data of a prestored reference pattern while varying the relative positional relation", of an imaging system and an optical system (i.e., varying a focus position of the system) such that, "a relative positional relation giving the maximum correlation value [is judged to be] an in-focus state". Also see Kitamura at Col. 2, line 64 to Col. 3, line 19 and at Col. 2, lines 1-16.

As such, to determine an optimum focus position, Kitamura explicitly discloses comparing only a portion of an image (i.e., object patterns within the image) created by the system to a *single*, stored reference pattern corresponding to the image object patterns. The optimum focus position according to Kitamura is a position that maximizes a correlation between object pattern-related image data and the "prestored reference pattern".

However, Kitamura fails to disclose an, "image of a typical object", as defined by Applicant's specification and recited in Claims 1, 21 and 26. In particular, as defined by Applicant, the "image of a typical object" is an actual image that is created or taken by the imaging system (See for example, Applicant's specification, Page 12, line 29, through Page 13, line 6). Moreover, the 'typical object' that is imaged is explicitly defined by Applicant as, "an object that is representative of a class of objects", that contains the object to be imaged (Applicant's specification, Page 13, line 2). Instead, Kitamura explicitly discloses only a 'reference pattern' which at best only represents a portion of the 'images of the observation object'. Additionally,

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Kitamura fails to disclose that the "reference pattern" is an actual image that is created or taken by the imaging system.

Furthermore, Kitamura fails to disclose that the typical object image is "in a set of images of the typical object", as further recited in Claim 26, as originally filed. Instead, according to Kitamura only a single 'reference pattern' is employed for comparison or correlation purposes. In particular, the reference pattern employed by the system of Kitamura must represent a portion of an *optimally focused image* of a corresponding object pattern for the method of Kitamura to properly function. Being associated with an optimally focused image, there is and can be only one reference pattern (or optimally focused image) to which a particular object pattern in an image of the observation object can be compared, according to the disclosure of Kitamura. Thus, Kitamura does not and respectfully cannot disclose a set of images of the typical object.

Finally, Kitamura is clearly varying a focus position of the imaging system in an attempt to maximize a correlation between an image taken by the system and the reference pattern representing an optimally focused image. See for example, Kitamura, Col. 3, lines 9-44 (e.g., starting with "In this case, if the relative positional relation among the image pickup device and the optical system and the observation object is gradually changed ...").

Notwithstanding the discussion above, in order to further the prosecution, Applicant has amended Claims 1, 21 and 26. Specifically, Applicant has amended the subject claims to clarify and emphasize that the typical object image is a member of a set of images of the typical object. Further emphasized is that the set contains a plurality of images (i.e., strictly more than one image) and that each of the images in the set represent or are associated with different focus positions of the imaging system. Thus, as amended herein, Claims 1, 21 and 26 explicitly recite more than one typical object image and further recite that different ones of the typical object images are associated with different focus positions of the system. Accordingly, the optimum focus position is determined at least from, "a comparison between an image of a typical object and an image of the object created by the imaging system", "wherein the typical object image is one image of a plurality of typical object images in a set",

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and wherein each image in the set is, "associated with a different focus position", as is variously recited in Claims 1, 21 and 26.

With respect to the amended claims, Kitamura clearly fails to disclose or even suggest that the disclosed comparison (i.e., correlation) involves a *set or plurality* of typical object images comprising more than one image. Moreover, the 'reference pattern' according to Kitamura must be associated with only an optimum focus position or else the Kitamura method and system would produce out-of-focus images of the observation object. In particular, the focusing according to Kitamura attempts to maximize a correlation between the reference pattern and object patterns in an image of observation object. If the reference pattern were associated with a focus position other than the optimum focus position, the maximum correlation with the reference image would necessarily be achieved for something other than the optimum focus position. At best, such a circumstance would defeat the purpose of the focusing according to Kitamura.

Hence, Kitamura does not and respectfully cannot disclose or even suggest that claimed by Applicant in amended Claims 1, 21 and 26. The Examiner has not shown and respectfully cannot show that there is, "no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention", as required by the Federal Circuit for establishing *prima facie* anticipation under 35 U.S.C. 102. *Scripps Clinic & Research Found. V. Genentech Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991). The rejection of Claims 1, 21 and 26 under 35 U.S.C. 102(b) in view of Kitamura is therefore unsupported by facts in evidence and should be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

The Examiner rejected Claims 10-12 and 31-33 under 35 U.S.C. 102(b) as being anticipated by Zwirn et al., U.S. Patent No. 4,789,898 (hereinafter 'Zwirn et al.'). Regarding Claim 10, the Examiner contended, "Zwirn teaches comparing video image signals (control signals), which are related to image characteristics such as edge density to determine an optimum focused image", citing Zwirn et al. at Col. 2, lines 20-45 and Col. 4, lines 24-40. The Examiner further contended that Zwirn et al. disclose, "determining an optimum focus position by adjusting the focus position

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towards the focus position where the high frequency content increases thereby increasing the sharpness of the focus (optimum focus). The Examiner cited Zwirn et al. at Col. 1, lines 62-65, Col. 2, lines 1-10, lines 415-45, Col. 3, lines 50-60, and Col. 4, lines 35-39, in support of the contention. Regarding Claim 31, the Examiner decided to 'select', "using first focus position which being [sic] the position, which corresponds to the object created by the imaging system that has a greatest edge density as an optimum focus position for the imaging system" (emphasis in original). The Examiner contended, "Zwirn clearly teaches that a focus position with greatest edge density will define the optimum focused position and thus this position if used will optimally focus the imaging system".

As was discussed above, Applicant strongly objects to the Examiner's rejection of Claims 10-12 and 31-33 in view of the disclosure of Zwirn et al., which Applicant successfully overcame according to Examiner in the Previous Action (See Page 11 thereof, *Allowable Subject Matter*, cited *supra*). That notwithstanding, Applicant traverses the rejection of Claims 10-12 and 31-33 on the grounds that the Examiner failed to establish a *prima facie* case of anticipation with respect to Zwirn et al. In particular, Zwirn et al. do not disclose, explicitly or implicitly, "each element of the claim under consideration" (*W.L. Gore & Associates v. Garlock*, cited *supra*) and further that Zwirn et al. do not disclose the claimed elements "arranged as in the claim" (*Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, cited *supra*), as *required* by the Federal Circuit for *prima facie* anticipation under 35 U.S.C. 102.

Regarding base Claim 10, Applicant respectfully directs the Examiner to the discussion of Zwirn et al. in a Response/Amendment mailed January 20, 2006, beginning on Page 15, 4th paragraph and continuing to Page 20, first full paragraph. In particular, as was previously discussed by Applicant, the "typical object" recited in Claim 10 is representative of a class of objects and is separate and distinct from the "object being imaged", as recited therein. At least since Zwirn et al. clearly fail to disclose, explicitly or implicitly, imaging a typical object that is distinguished from an object being imaged, then Zwirn et al. fail to disclose each and every element recited in Applicant's Claim 10, as presently presented.

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Regarding base Claim 31, Zwirn et al. at least fail to disclose, "a typical object", "a reference image of a typical object", and "an image of the typical object that closely matches the image of the object", as recited in Applicant's Claim 31. Furthermore, Zwirn et al. never disclose or even suggest, "comparing the image of the object to images in the set of images of the typical object to find a closest matching image", as recited in Applicant's Claim 31. The *only* comparison disclosed or even suggested by Zwirn et al. is a comparison of control signals derived from a measure of edge density in successive images captured by a scanned video system.

In addition, the Examiner allowed Claims 5 and 7 in view of Zwirn et al. in the Present Action. Claim 31 was added as and remains essentially as a combination of the subject matter recited in allowed Claims 5 and 7. As such, Claim 31 should be deemed allowable over Zwirn et al., *according to the Examiner's own admission*, for at least the reasons that Claims 5 and 7 were allowed.

Claims 11 and 12 are dependent from and include all of the limitations of base Claim 10. Claims 32 and 33 are dependent from and include all of the limitations of base Claim 31. Since Zwirn et al. fail to disclose all elements of the base claims for the reasons discussed above, Zwirn et al. similarly fail to disclose all elements of dependent Claims 11 and 12 and separately dependent Claims 32 and 33 for at least the reasons given above. Moreover, Claim 32, considered separately from its base claim, recites essentially the subject matter of allowed Claim 6 while Claim 33, considered separately from its base claim, recites essentially the subject matter of allowed Claim 8.

Hence, the Examiner failed to show that there is, "no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention", as required by the Federal Circuit for establishing *prima facie* anticipation under 35 U.S.C. 102. *Scripps Clinic & Research Found. V. Genentech Inc.*, cited *surpa*. The rejection of Claims 10-12 and 31-33 under 35 U.S.C. 102(b) in view of Zwirn et al. is unsupported by facts in evidence as well as being incompatible with the Examiner's stated reasons for allowance in previous actions and therefore, must be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

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The Examiner rejected Claims 1-2, 21, 23 and 26-27 under 35 U.S.C. 103(a) as being unpatentable over Kitamura further in view of Zwirn et al. The Examiner appeared to admit that Kitamura fails to disclose an edge density determination and thus Kitamura does not disclose "an edge density in an image of the object and the comparison to determine an optimum focus position", as is variously recited in the rejected claims. The Examiner combined the teachings of Kitamura with those of Zwirn et al. in attempt to overcome the admitted shortcomings of Kitamura. Furthermore, the Examiner stated that since, "both references belong to the same field of endeavor and both references provide automatic focusing using image comparison and Zwirn provides a well-known detailed teaching of focus being the function ... of high frequency components [i.e., edge density] ...", it would have been obvious to combine the references (hereinafter 'Examiner's Proposed Motivation').

Applicant respectfully traverses the rejection under 35 U.S.C. 103(a) on the grounds that the Examiner failed to establish and properly support a *prima facie* case of obviousness with respect to Kitamura further in view of Zwirn et al. (hereinafter 'the references'). Specifically, the Examiner did not show, with respect to the rejected claims, *each of* 1) "some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings"; 2) "a reasonable expectation of success" in modifying or combining the teachings of the references; *and* 3) that the references when combined, "teach or suggest all the claim limitations", as required by the courts for establishing *prima facie* obviousness. MPEP, Section 2142, cited *supra*. Moreover, the Examiner failed to establish that the teaching or suggestion to make the claimed combination and the reasonable expectation of success are both "found in the prior art, and **not** based on applicant's disclosure" (*emphasis added*). *In re Vaack*, 947 F.2d 488, 20 USPQ2d 1438 (Fed.Cir.1991). In short, the Examiner's reasons for rejecting Claims 1-2, 21, 23 and 26-27 respectfully fail to meet even the minimum requirements necessary for establishing and maintaining *prima facie* obviousness with respect to the references.

As discussed above with respect to a rejection under 35 U.S.C. 102(b), Kitamura fails to disclose all of the claim limitations recited in amended base Claims

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1, 21, and 26. Specifically, Kitamura at least fails to disclose or even suggest that, "the typical object image is [or could be] one image of a plurality of images of the typical object in a set, each image in the set being associated with a different focus position", as variously recited in amended Claims 1 and 21. Additionally, Kitamura at least does not disclose either of, "an image of a typical object in a set of images of the typical object", or that, "the set of images comprises a plurality of different images of the typical object, each different image being taken at a different focus position of the imaging system", recited in Claim 26, as amended herein. Zwirn et al. do not disclose these limitations of Claims 1, 21 and 26 either. Therefore, regardless of whether or not Zwirn et al. disclose "edge density determination", Zwirn et al. at least fail to add to the limitations that are lacking in the disclosure of Kitamura, as discussed above. The combination of Kitamura and Zwirn et al. does not and respectfully cannot disclose or suggest all of the claim limitations that are separately recited in each of base Claims 1, 21 and 26, as is required for showing *prima facie* obviousness. Therefore, failure to teach or suggest all of the claim limitations, in and of itself, defeats a *prima facie* case of obviousness. See *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974).

Regarding a motivation to combine the teachings of Kitamura and Zwirn et al., the Examiner relied on both a common field of the invention and a suggested similarity in a disclosure regarding automatic focusing. However, the Examiner failed to establish and support a legitimate motivation to combine/modify the references, as is required by the courts.

In particular, Applicant once again reminds the Examiner and respectfully requests that the Examiner explicitly acknowledge that, "[o]bviousness can *only* be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation *to do so* found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" (*emphasis added*). MPEP §2143.01 *Suggestion or Motivation to Modify the References*. "[T]he mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art *also suggests the desirability* of the combination. *In re*

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Mills, 916 F.2d 680, 16 USPQ2d 1430 (Fed. Cir. 1990)” (emphasis in original; *emphasis* added). MPEP §2143.01, cited *supra*.

In particular, for a motivation to combine/modify to be legitimate and therefore, be employed to support a *prima facie* case of obviousness, there must be “evidence that ‘a skilled artisan, *confronted with the same problems as the inventor* and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed’” (*emphasis is* added). *Ecolochem, Inc. v. Southern Calif. Edison Co.*, cited *supra*. “[E]ven when the level of skill in the art is high, the Board [or the Examiner] must identify specifically the principle, known to one of ordinary skill, which suggests the claimed combination. In other words, the Board [or the Examiner] *must explain the reasons* one of ordinary skill in the art would have been motivated to select the references and to combine them to render the claimed invention obvious” (*emphasis* added). *In re Rouffet*, cited *supra*.

The Examiner has not established that some teaching, suggestion, or motivation existed in either the references themselves or in the knowledge of the skilled artisan, without knowledge of Applicant’s disclosure, that would have motivated the combination and the modification of the disclosure of Kitamura using the disclosure of Zwirn et al. as proposed by the Examiner. Furthermore, the Examiner has not demonstrated that the prior art recognized the *desirability* of the proposed combination/modification. Similarly, the Examiner has not explained the reasons why the skilled artisan would have been motivated either to select the *particular references* or to combine the references as suggested by the Examiner. There is simply *no evidence* to support a finding that, ‘a skilled artisan, *confronted with the same problems as the inventor* and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed’. *In re Rouffet*, cited *supra*.

In fact, Appellant can discern no objective reason for combining/modifying Kitamura and Zwirn et al., as proposed by the Examiner, other than a possible attempt on the part of the Examiner to address acknowledged deficiencies in the disclosure of Kitamura with respect to Applicant’s claim limitations. In other words, the Examiner

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appears to be improperly using Applicant's teaching as a blue print for picking and choosing among the disclosed features of the cited references.

However, the Examiner may not, "resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in its factual basis". *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied 389 U.S. 1057 (1998). Moreover, the Federal Circuit held, "[i]t is impermissible to use the claimed invention as an instruction manual or 'template' to piece together the teachings of the prior art so that the claimed invention is rendered obvious ... '[o]ne cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to depreciate the claimed invention.'" *In re Fritch*, 972 F. 2d 1260, 23 USPQ2d 1780, 1784 (Fed. Cir. 1992), quoting *In re Fine*, *In re Fine*, 837 F.2d 1071, 1075 USPQ2d 1596 (Fed. Cir. 1988). The Federal Circuit has repeatedly and clearly warned against, "the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher". *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000) (citing *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, cited *supra*). ("To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher", *W.L. Gore & Assocs., Inc. v. Garlock, Inc.* cited *supra*.) As stated by the Federal Circuit, "Obviousness *may not* be established using hindsight" (*emphasis added*). *Para-Ordnance Mfg. v. SGS Importers Int'l*, 73 F.3d 1085, 1087, 37 USPQ2d 1237, 1239 (Fed. Cir. 1995). "Combining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure as a blueprint for piecing together the prior art to defeat patentability—the essence of hindsight". *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

Hence, the Examiner clearly has not provided a legitimate motivation to combine/modify the references in support of a *prima facie* case of obviousness. An absence of a legitimate or supported motivation to combine Kitamura and Zwirn et al., without more, is sufficient to defeat a *prima facie* case of obviousness with respect to at least base Claims 1, 21 and 26. Furthermore, given the lack of a supported

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motivation to combine the respective references, *any* consideration regarding what the respective combination may or may not disclose is moot. However, as discussed above, the combined reference further lack a teaching or suggestion of all claim limitations.

Finally, the Examiner also failed to show and was silent on there being a reasonable expectation of success in modifying the teachings of Kitamura with the teachings of Zwirn et al. The Examiner is obliged to show that such a reasonable expectation of success exists according to the case law. As provided by the Federal Circuit, the Examiner must establish that the reasonable expectation of success, as well as the teaching or suggestion to make the claimed combination, are both "found in the prior art, and not based on applicant's disclosure". *In re Vaeck*, cited *supra*. The Examiner is not at liberty to dispense with this requirement in establishing a *prima facie* case of obviousness under 35 U.S.C. 103.

At least for failing to provide a legitimate motivation to combine/modify and a reasonable expectation for success, as well as for failing to establish that all of the limitations of the rejected claims are disclosed or suggested, the Examiner's rejection under 35 U.S.C. 103(a) of at least base Claims 1, 21 and 26 lacks proper support for a *prima facie* case of obviousness according to the courts.

Furthermore, Applicant respectfully reminds the Examiner that if an independent base claim is non-obvious under 35 U.S.C. 103, any claim depending therefrom is likewise non-obvious. *In re Fine*, cited *supra*. As such, having failed to establish *prima facie* obviousness with respect to base Claims 1, 21 and 26, the Examiner has similarly failed to establish *prima facie* obviousness with respect to dependent Claims 2, 23 and 27, respectively. Thus, the rejection of Claims 1-2, 21, 23, and 26-27 under 35 U.S.C. 103(a) over Kitamura in view of Zwirn et al. must be withdrawn for lack of proper support.

The Examiner rejected Claims 25 and 30 under 35 U.S.C. 103(a) as being unpatentable over Kitamura further in view of Zwirn et al., and further in view of Rooks et al., IEEE, June 5, 1999, "Development of an inspection process for ball-grid array technology using scanned-beam x-ray laminography" (hereinafter 'Rooks et al.'). The Examiner contended that Rooks et al. teaches inspection of eutectic-solder

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fillets of ball grid array (BGA) joints using an X-ray laminography system. The Examiner further contended, "Rooks teaches that ... the system must be able to focus on a particular horizontal cross-sectional plane". The Examiner concluded that it would have been obvious, "to use the automatic focusing as taught by combined invention of Zwirn and Kitamura in the X-ray laminography system of Rooks", because Zwirn teaches using scene information, "which is also applicable to Rooks, as Rooks wants to isolate the solder fillets from the solder balls (scene information) by using system that is able to focus on a particular horizontal cross-sectional plane ...". The Examiner further contended, "Kitamura discloses semiconductor inspection which is also applicable to Rooks". Finally, the Examiner contended, "Rooks teaches automated system, from which it is clear the focus is automatically performed by system and further support is provided by Rooks on page 860, right column, first paragraph".

Applicant respectfully traverses the rejection under 35 U.S.C. 103(a) on the grounds that the Examiner failed to establish and properly support a *prima facie* case of obviousness with respect to Kitamura in view of Zwirn et al. and further in view of Rooks et al. (hereinafter 'the references').

Claim 25 is dependent from and includes all of the limitations of base Claim 21, as amended above. Claim 30 is dependent from and includes all of the limitations of base Claim 26. As discussed above, a combination of Kitamura and Zwirn et al. fails to teach or suggest all of the claim limitations of respective base Claims 21 and 26. Rooks et al. fail to add the claim limitations that are lacking in the combination of Kitamura and Zwirn et al. As such, the combination Kitamura, Zwirn et al. and Rooks et al. similarly fails to disclose or suggest all of the claim limitations of the base claims, as is required for establishing *prima facie* obviousness. For example, the references in combination fail to disclose or even suggest, "wherein the typical object image is one image of a plurality of typical object images in a set, each image of the plurality having an associated different focus position of the imaging system", as recited in amended base Claim 21. Similarly, the references do not disclose or suggest either a comparison involving, "an image of a typical object in a set of images", or "wherein the set of images comprises a plurality of different images of the

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typical object, each different image being taken at a different focus position of the imaging system", as recited in amended Claim 26. For at least these same reasons, Kitamura in view of Zwirn et al. and further in view of Rooks et al. fail to teach all of the limitations of either dependent Claim 25 or dependent Claim 30, as required for a finding of *prima facie* obviousness (*In re Royka*, cited *supra*), thereby defeating the *prima facie* case of obviousness with respect thereto.

Moreover, as discussed above, the Examiner did not provide a legitimate motivation to combine/modify Kitamura and Zwirn et al. As such, the combination of Kitamura and Zwirn et al. is fatally flawed. Also fatally flawed for the same reasons is the further combination of Kitamura and Zwirn et al. with any other reference including, but not limited to, Rooks et al.

That notwithstanding, the Examiner's proposed motivation to combine Rooks et al. with Kitamura and Zwirn et al. similarly lacks legitimacy for essentially the same reasons given above with respect to the combination of Kitamura and Zwirn et al. See at least MPEP §2143.01, cited *supra*; *In re Mills*, cited *supra*; *In re Rouffet*, cited *supra*; and *Ecolochem, Inc. v. Southern Calif. Edison Co.*, cited *supra*. In particular, the Examiner's proposed motivation to combine Kitamura, Zwirn et al. and Rooks et al. lacks a showing that the, "motivation *to do so* [is] found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art" (*emphasis added*). MPEP §2143.01 cited *supra*. The Examiner further failed to provide, "evidence that 'a skilled artisan, *confronted with the same problems as the inventor* and with no knowledge of the claimed invention, would select the elements from the cited prior art references for combination in the manner claimed'" (*emphasis is added*). *Ecolochem, Inc. v. Southern Calif. Edison Co.*, cited *supra*. Specifically, the Examiner did not explain the reasons why the skilled artisan would have been motivated to both select the particular references for combination and to combine them in the manner suggested by the Examiner, as required by the courts in a myriad of decisions. Also, see for example, *In re Rouffet*, cited *supra*.

Moreover, as with the original combination of Kitamura and Zwirn et al., Applicant can discern no reason for selecting Rooks et al. for combination therewith,

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other than a possible attempt on the part of the Examiner to address acknowledged deficiencies in the combined disclosure of Kitamura and Zwirn et al. with respect to Applicant's claim limitations. In other words, the Examiner appears to be improperly using Applicant's teaching as a blue print for picking and choosing among the disclosed features of the cited references which has been explicitly prohibited by the courts. See *In re Fritch*, cited *supra*. Also see, *In re Warner*, cited *supra* and *In re Kotzab*, cited *supra*.

The Examiner also did not show and was silent on there being a reasonable expectation of success in modifying the teachings of Kitamura and Zwirn et al. with the teachings of Rooks et al. As noted above, the Examiner is not at liberty to merely dispense with this requirement for convenience when attempting to establish a *prima facie* case of obviousness under 35 U.S.C. 103.

At least for failing to provide a legitimate motivation to combine/modify and reasonable expectation of success, as well as for separately failing to establish that all of the limitations of the rejected claims are disclosed or suggested, the Examiner's rejection under 35 U.S.C. 103(a) lacks proper support for a *prima facie* case of obviousness according to the courts. Thus, the rejection of Claims 25 and 30 under 35 U.S.C. 103(a) over Kitamura in view of Zwirn et al. and further in view of Rooks et al. must be withdrawn. Reconsideration and withdrawal of the rejection are respectfully requested.

Applicant appreciates the Examiner's allowance of Claims 5-9, 15-20 and 34-35 (Claim 13 was previously canceled). Further, Applicant appreciates the Examiner's acknowledgement of the allowability of Claims 3, 4, 14, 22, 24, 28 and 29 if rewritten in independent form including all of the limitations of the base claim and any intervening claim. However, in light of the discussion hereinabove, Applicant respectfully declines to rewrite the claims at this time and, instead, respectfully requests reconsideration.


In summary, Claims 1-12 and 14-35 are pending. Claims 1, 2, 10-12, 21, 23, 25-27 and 30-33 were rejected. Claims 5-9, 15-20 and 34-35 were allowed and Claims 3, 4, 14, 22, 24, 28 and 29 were objected to. Claims 1, 21 and 26 are amended herein. For the reasons detailed above, it is respectfully submitted that Claims 1-4,

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10-12, 14 and 21-33, as amended herein, are in condition for allowance. It is respectfully requested that Claims 1-4, 10-12, 14 and 21-33 be allowed along with allowed Claims 5-9, 15-20 and 34-35, and that the application be passed to issue at an early date.

Should the Examiner's action be other than allowance of the claims, the Examiner is urged to contact the undersigned by telephone at the number given below in an effort to expedite the prosecution of this application. Should the Examiner have any questions regarding the above, the Examiner is urged to contact the undersigned or Robert T. Martin, Attorney for Applicant, Registration No. 32,426 at Agilent Technologies, Inc., telephone number (408) 553-2933.

Respectfully submitted,
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CERTIFICATE OF TRANSMISSION

I hereby certify that this correspondence is being facsimile transmitted to the United States Patent and Trademark Office on the date shown below.


J. Michael Johnson

9/1/06
Date

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